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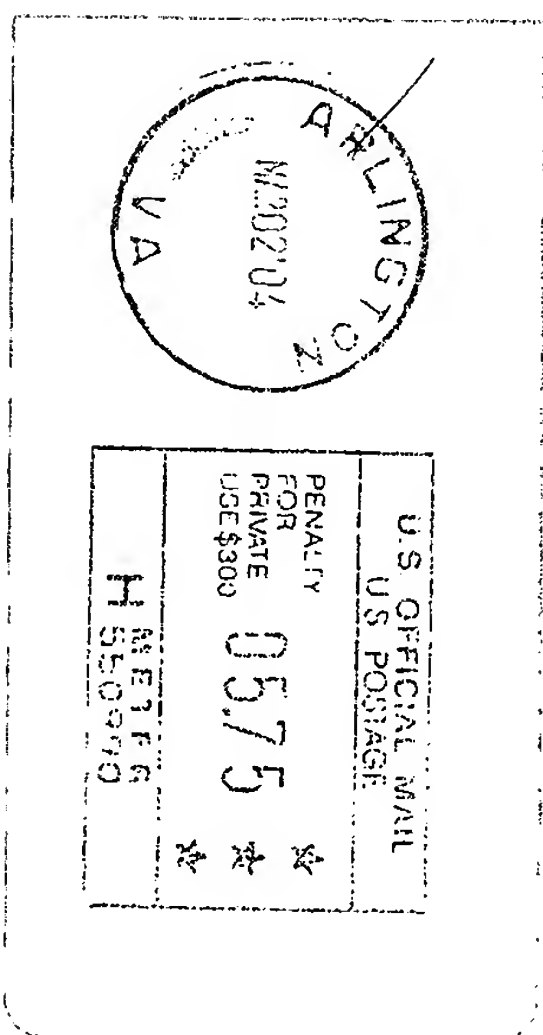
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/027,940      | 12/19/2001  | Pablo I. Rovira      | M-12332 US          | 2588             |

7590 03/02/2004  
SKJERVEN MORRILL MACPHERSON LLP  
25 METRO DRIVE  
SUITE 700  
SAN JOSE, CA 95110

|             |              |
|-------------|--------------|
| EXAMINER    |              |
| PHAM, HOA Q |              |
| ART UNIT    | PAPER NUMBER |
| 2877        |              |

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

10/027,940

Applicant(s)

ROVIRA ET AL.

Examiner

Hoa Q. Pham

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 22-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/19/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of invention of Group 1 (claims 1-21) on December 01, 2003 is acknowledged.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 9-12, 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law (5,754,296) in view of Carter et al (4,508,832).

Regarding claims 1, 9-11, 14, and 18, Law discloses an ellipsometric microscope comprises a light source (14), a spatially dependent polarizing element (26) in the path of the light beam, a multi-element detector (CCD) (34) within the path of the light beam for detecting the intensity of the light beam reflected from the sample (58). Law does not explicitly teach that light source is a pulsed light source for generating a pulsed light beam; however, such a feature is known in the art as taught by Carter et al. Carter et al, from the same field of endeavor, teach that the use of a chopper for providing a periodically interrupted signal (pulsed light beam) in the ellipsometer (column 7, lines 17-38 and column 8, lines 3-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Law a chopper as taught by

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Law for the purpose of providing a pulsed light beam. The rationale for this modification would have arisen from the fact that using such chopper would provide a reference signal which gives phase sensitive detection enabling a great reduction in background noise as suggested by Carter et al.

Regarding claims 2 and 15, see column 7, line 19 of Carter et al for the use of a laser source.

Regarding claim 3, Law shows that the polarizer (28) is located after the retarder (26) (figure 1).

Regarding claims 4-5, 12, Law teaches that the beam expander (30) is located after the retarder. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the beam expander before the retarder because the device would function in the same manner. In addition, it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

Regarding claim 17, Law shows that expanding means (30) is located in the in the path of the light beam (figure 1).

4. Claims 6-8, 13, 16 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law and Carter et al as applied to claims 1-5, 9-12, 14-15, and 17-18 above, and further in view of Aspnes et al (6,134,012) and Houston et al (4,931,657).

Regarding claims 6 and 16, Law and carter et al do not explicitly teach the use of a wavelength-dispersing component; however, such a feature is known in the art as

taught by Aspnes et al. Aspnes et al discloses an ellipsometer in which the detector (72) including a wavelength dispersing component (128) and detector element (132) (figure 8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the light source and the detector of Law by a broadband light source and detector unit (72) of Aspnes et al if the polarization states is determined. The rationale for this modification would have arisen from the fact that the system of Aspnes et al can function over a wide range of wavelengths, thus providing a broad perspective of the sample as compared to measurements made at a single wavelength as suggested by Aspnes (column 1, lines 53-57).

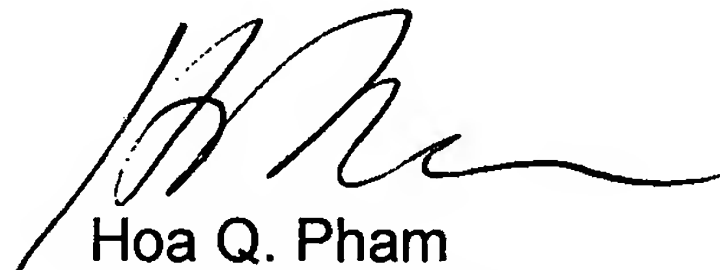
Regarding claims 7-8 and 13, Houston et al teaches means (60) coupled to the strobe light and the camera for synchronizing the operation of the strobe with the operation of the camera (column 2, lines 64-68, column 4, lines 51-63). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include in Law and Carter et al a synchronizer as taught by Houston et al so that the CCD can detect the light only when the light source is turned-on, thus increase the signal to noise ratio.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Following references are relative to ellipsometry: Wei et al (6,583,875), Kuroha (4,105,338), Fluckiger et al (6,052,188), Cohn et al (5,076,696), and Powell et al (6,525,892).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa Q. Pham whose telephone number is (571) 272-2426. The examiner can normally be reached on 7:30AM to 6 PM, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hoa Q. Pham  
Primary Examiner  
Art Unit 2877

HP  
February 20, 2004



#2

Sheet 1 of 2

|   |    |   |                 |                  |                                   |          |                            |    |
|---|----|---|-----------------|------------------|-----------------------------------|----------|----------------------------|----|
| U.S. Department of Commerce, Patent and Trademark Office  |    |   |                 |                  | Atty Docket No.                   |          | Serial No.                 |    |
|   |    |   |                 |                  | M-12332 US                        |          | Unknown                    |    |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT   |    |   |                 |                  | Applicants                        |          |                            |    |
| (Use several sheets if necessary)   |    |   |                 |                  | Pablo I. Rovira and Lars Markwort |          |                            |    |
|   |    |   |                 |                  | Filing Date                       |          | Group                      |    |
|   |    |   |                 |                  | Herewith                          |          | Unknown                    |    |
| U.S. Patent Documents   |    |   |                 |                  |                                   |          |                            |    |
| *Examiner Initial   |    | Document Number   | Date            | Name             | Class                             | Subclass | Filing Date If Appropriate |    |
| HP  | AA | 5,392,116   | Feb. 21, 1995   | Makosch          | 356                               | 351      |                            |    |
| HP  | AB | 5,502,567   | Mar. 26, 1996   | Pokrowsky et al. | 356                               | 367      |                            |    |
| HP  | AC | 5,889,593   | Mar. 30, 1999   | Bareket          | 356                               | 445      |                            |    |
| HP  | AD | 6,002,477   | Dec. 14, 1999   | Hammer           | 356                               | 307      |                            |    |
| HP  | AE | 6,160,621   | Dec. 12, 2000   | Perry et al.     | 356                               | 381      |                            |    |
| HP  | AF | 6,122,052   | Sep. 19, 2000   | Barnes et al.    | 356                               | 328      |                            |    |
| HP  | AG | 6,275,291   | Aug. 14, 2001   | Abraham et al.   | 356                               | 367      |                            |    |
|   | AH |   |                 |                  |                                   |          |                            |    |
| Foreign Patent Documents  |    |   |                 |                  |                                   |          |                            |    |
|   |    |   |                 |                  |                                   |          | Translation                |    |
|   |    | Document  | Date            | Country          | Class                             | Subclass | Yes                        | No |
| HP  | AI | EP 0 987 537 A2   | Mar. 22, 2000   | Europe           |                                   |          |                            | X  |
|   | AJ |   |                 |                  |                                   |          |                            |    |
| OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)  |    |   |                 |                  |                                   |          |                            |    |
| HP  | AK | Azzram, R., "An arrangement of two reflective photodetectors for measuring all four Stokes parameters of light", <i>American Institute of Physics</i> (1991) Pages 2080-2082. |                 |                  |                                   |          |                            |    |
| HP  | AL | Bennett, J., "Polarizers" <i>Optical Elements</i> , Chapter 3, Pages 3.1-3.70.  |                 |                  |                                   |          |                            |    |
| HP  | AM | Cumming, D. et al., "A variable polarisation compensator using artificial dielectrics" Elsevier Science (1999) Pages 164-168.   |                 |                  |                                   |          |                            |    |
| HP  | AN | Hauge, P., "Recent Developments In Instrumentation In Ellipsometry", <i>Surface Science</i> 96 (1980) Pages 108-140.  |                 |                  |                                   |          |                            |    |
| HP  | AO | Horn, T., "Liquid Crystal Imaging Stokes Polarimeter", <i>Astronomical Society of the Pacific</i> (1999) Pages 33-37.   |                 |                  |                                   |          |                            |    |
| HP  | AP | Jasperson, S., "A Modulated Ellipsometer For Studying Thin Film Optical Properties And Surface Dynamics" <i>Surface Science</i> 37 (1973) Pages 548-558.                      |                 |                  |                                   |          |                            |    |
| Examiner  |    |   | Date Considered |                  |                                   |          |                            |    |
|   |    |   | 2/20/04         |                  |                                   |          |                            |    |
| *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant. |    |   |                 |                  |                                   |          |                            |    |

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| U.S. Department of Commerce, Patent and Trademark Office  |    |   |      |                                | Atty Docket No.                   |          | Serial No.                 |    |
|   |    |   |      |                                | M-12332 US                        |          | Unknown                    |    |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT   |    |   |      |                                | Applicants                        |          |                            |    |
| (Use several sheets if necessary)   |    |   |      |                                | Pablo I. Rovira and Lars Markwort |          |                            |    |
|   |    |   |      |                                | Filing Date                       |          | Group                      |    |
|   |    |   |      |                                | Herewith                          |          | Unknown                    |    |
| U.S. Patent Documents   |    |   |      |                                |                                   |          |                            |    |
| *Examiner Initial   |    | Document Number   | Date | Name                           | Class                             | Subclass | Filing Date If Appropriate |    |
|   | AA |   |      |                                |                                   |          |                            |    |
|   | AB |   |      |                                |                                   |          |                            |    |
|   | AC |   |      |                                |                                   |          |                            |    |
|   | AD |   |      |                                |                                   |          |                            |    |
|   | AE |   |      | <i>None</i>                    |                                   |          |                            |    |
|   | AF |   |      |                                |                                   |          |                            |    |
|   | AG |   |      |                                |                                   |          |                            |    |
|   | AH |   |      |                                |                                   |          |                            |    |
| Foreign Patent Documents  |    |   |      |                                |                                   |          |                            |    |
|   |    |   |      |                                |                                   |          | Translation                |    |
|   |    | Document  | Date | Country                        | Class                             | Subclass | Yes                        | No |
|   | AI |   |      |                                |                                   |          |                            |    |
|   | AJ |   |      | <i>None</i>                    |                                   |          |                            |    |
| OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)  |    |   |      |                                |                                   |          |                            |    |
| <i>180</i>  | AK | Kazama, A. et al., "Compact and high-speed ellipsometer" <i>SPIE</i> Vol. 1681 Pages (1992) 183-188.  |      |                                |                                   |          |                            |    |
| <i>180</i>  | AL | Lee, J. et al., "Rotating-compensator multichannel ellipsometry: Applications for real time Stokes vector spectroscopy of thin film growth", <i>Review of Scientific Instruments</i> 69 (1998) Pages 1800-1810.                               |      |                                |                                   |          |                            |    |
| <i>180</i>  | AM | Oliva, E., "Wedged double Wollaston, a device for single shot polarimetric measurements", <i>Astronomy &amp; Astrophysics Supplement Series</i> 123 (1977) Pages 589-592.   |      |                                |                                   |          |                            |    |
| <i>180</i>  | AN | Smajkiewicz, A., "An Argument for a Filter Array vs. Linear Variable Filter in Precision Analytical Instrument Applications".   |      |                                |                                   |          |                            |    |
| <i>180</i>  | AO | "Stokes Polarimetry Using Liquid-Crystal Variable Retarders", downloaded 6/11/01 from < <a href="http://www.meadowlark.com/AppNotes/appnote3.htm">http://www.meadowlark.com/AppNotes/appnote3.htm</a> >, Meadowlark Optics, Inc. (1998-2001). |      |                                |                                   |          |                            |    |
| <i>180</i>  | AP | Chapter 3, Ellipsometer Systems, "Theory and Analysis of Measurements in Ellipsometer Systems" Pages 167-268.   |      |                                |                                   |          |                            |    |
| Examiner  |    | <i>[Signature]</i>  |      | Date Considered <i>2/20/04</i> |                                   |          |                            |    |
| *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with your communication to applicant. |    |   |      |                                |                                   |          |                            |    |

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|-----------------------------------|---------------------------------------|---|-------------|
| <b>Notice of References Cited</b> | Application/Control No.<br>10/027,940 | Applicant(s)/Patent Under<br>Reexamination<br>ROVIRA ET AL. |             |
|                                   | Examiner<br>Hoa Q. Pham               | Art Unit<br>2877  | Page 1 of 1 |

U.S. PATENT DOCUMENTS

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name             | Classification |
|---|---|--|-----------------|------------------|----------------|
|   | A | US-6,525,829                                     | 02-2003         | Powell et al.    | 356/630        |
|   | B | US-5,076,696                                     | 12-1991         | Cohn et al.      | 356/369        |
|   | C | US-6,052,188                                     | 04-2000         | Fluckiger et al. | 356/369        |
|   | D | US-4,105,338                                     | 08-1978         | Kuroha, Noboru   | 356/365        |
|   | E | US-6,583,875                                     | 06-2003         | Wei et al.       | 356/369        |
|   | F | US-4,508,832                                     | 04-1985         | Carter et al.    | 436/517        |
|   | G | US-6,134,012                                     | 10-2000         | Aspnes et al.    | 356/369        |
|   | H | US-5,754,296                                     | 05-1998         | Law, Bruce M.    | 356/369        |
|   | I | US-4,931,657                                     | 06-1990         | Houston et al.   | 250/559.08     |
|   | J | US-  |                 |                  |                |
|   | K | US-  |                 |                  |                |
|   | L | US-  |                 |                  |                |
|   | M | US-  |                 |                  |                |

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| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Country | Name | Classification |
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|   | R |  |                 |         |      |                |
|   | S |  |                 |         |      |                |
|   | T |  |                 |         |      |                |

NON-PATENT DOCUMENTS

| * |   | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|---|
|   | U |   |
|   | V |   |
|   | W |   |
|   | X |   |

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.